

SHELL ALBUM

by

Helen S. O'Brien

WITH IDEAS
for
COLLECTORS

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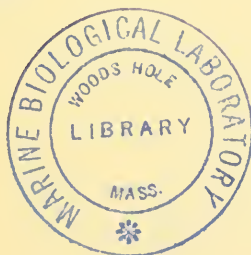
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Text, Diagrams and Photography By

Helen S. O'Brien



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TABLE OF CONTENTS

First Edition

	Page
Introduction	2
General Information about Mollusks	3
Collecting Marine Shells	4
Preparing Shells For Display	6
Post Card No. 1, Shell Gems From Around the World	9
Post Card No. 2, At the End of a Shell Collector's Rainbow	10
Post Card No. 3, The Pectens	15
Post Card No. 4, The Murex	16
Post Card No. 5, The Cymatium	19
Post Card No. 6, The Cyprea and Olives.....	20
Post Card No. 7, The Spondylus and Chama	23
Post Card No. 8, The Scaphella (Aurinia).....	24
Post Card No. 9, The Cones	27
Post Card No. 10, Heterogeneous collection of rare bivalves	28
Post Card No. 11, Heterogeneous collection of rare univalves	31
Post Card No. 12, The Strombus	32

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INTRODUCTION

We have prepared this Album as a service to those who are interested in the authentic names of the recently discovered shells. It is a supplement to any of the good shell books, not a substitute. We have made little attempt at description, depending on the actual photograph for detail. The familiar shells are grouped in the pictorial cards.

As color photographers we found ourselves in Florida on assignment several years ago. We took a stroll along the beach and spotted the first pretty shell. The beauty of these inhabitants of the deep charmed us and gave birth to the pursuit of an intriguing hobby.

Ektachrome post cards are our business and we were surprised at not finding a single natural color shell card available. Our first attempt was the pictorial cards; one of world wide specimens, the other of Florida shells any fortunate collector might find on the beaches under favorable conditions.

Except for the first few cards, most of the shells shown will not be found in contemporary color plates at the time of this printing.

These are the first of a series. Future pages can be added to your album as published.

We would appreciate your opinion and suggestion as to future cards.

GENERAL INFORMATION ABOUT MOLLUSKS

To assure international understanding, Latin, a dead language, is used for the authentic names of shells because it is not subject to change. Popular names are too localized to be practical. You will not regret learning the scientific names from the beginning.

There are five classes of mollusks:

1. Amphineura - the Chitons (coat-of-mail shells) have eight overlapping plates.
2. Scaphopoda, the tooth-shells (tusk shells) are tubular.
3. Pelecypoda - the bivalves, constitute about 18% of all mollusks.
4. Gastropoda - the univalves, constitute about 80% of all mollusks.
5. Cephalopoda - the Squid, Octopus, Spirula and Nautilus.

These five classes have but two structures in common - the foot and the mantle. The foot does not have the same use in each class. The univalves creep by means of their foot; the bivalves and tusk shells dig; and the Octopus envelopes its prey. The mantle is the fleshy outer covering of the body which secretes the material forming the shell. The color it secretes is usually similar to its own color and pattern. Spines are formed by folds of mantle margin. Varices by thickening of previous lips.

As the tiny baby shell emerges from the egg sack it bears enough similarity in most cases to its parent to be recognized. The baby shell forms the nucleus to which it adds more shell material. In the univalves the evidence of this is apparent in the axial ridges, the bivalves form concentric ridges each growth period. If the shell is injured the mollusk repairs the damage but a scar or deformity will be apparent. There will be an altered pattern.

The color of the shells is influenced by light. Those living in the Littoral Zone, the one with which we are most familiar (extending from shore to a depth of 100 fathoms) are colorful. Those dredged from the Archibenthal and Abyssal Regions are white. No light penetrates these depths. The shells are thinner. The tons of pressure would annihilate these creatures if it were not that the water is able to permeate all tissues, equalizing this pressure.

Various species attain to different ages. Many are from one to fifteen years while others rival man with three score years and ten.

COLLECTING MARINE SHELLS

Shell collecting is an inevitability once one beholds the treasures of a beach studded with shell gems. Young and old alike are captivated.

We started with beach-worn shells, beautiful to the finder, and these trophies were carefully transported a thousand miles to bring marveling pleasure to those who had yet to experience their first trip to a tropical sea. These beach-worn shells were just the threshold to an exciting adventure into beauty as we discovered the amazing varieties in color and form to be found in the world of shells.

The purpose of this album is to identify the new shells on the post cards; and to encourage the neophyte collector to emerge from the early stages as quickly as possible to begin an intelligent perusal of a vitally interesting study which will enrich body, mind and soul.

Few hobbies are as invigorating in outdoor exercise. Mentally there is a keen challenge to investigate deeper into the habits and characteristics of these fascinating creatures. Spiritually we learn the truth that "The Heavens declare the glory of God and the firmament showeth His handiwork." Our souls stir within us in awe of the marvelous works of our Creator; "In whom we have our redemption through His blood, even the forgiveness of sins: . . . For by Him were all things created, that are in heaven, and that are in earth, visible and invisible, . . . all things were created by Him and for Him and He is before all things and by Him all things consist." Collosians 1:14-16.

WHEN TO COLLECT SHELLS

The best time to collect shells is at low tide or after a heavy blow. On the Gulf of Mexico extremely low tides occur starting two days before new and full moon. Wind has its influence on the tide. Low tides expose areas otherwise inaccessible.

WHERE SHELLS ARE FOUND

Shelling centers of the Florida coast are: St. Augustine, Jupiter Inlet, Lake Worth, Biscayne Bay, Florida Keys, Key West, Marco, Naples, Bonita Springs, Fort Myers Beach, Sanibel, Captiva, Punta Gorda, Sarasota, St. Petersburg and Tampa Bay.

Inspect debris left at high tide on sandy beaches, particularly following a blow. On the Gulf search the sponge for *Pecten Muscosus*; wood for *Martesia*; *Atrinia* for *Chama* and *Murex*. From Daytona south investigate the seaweed for *Spirula* and *Janthina*. These are just a few of the hundreds of species to be found. Midway between high and low tide try digging. Wash the sand through a sieve at different depths and note the variety of mollusks at each level. There will be such bivalves as *Donax* and *Venus*; such univalves as *Oliva*, *Busycon* and *Natica*.

Investigate the under sides of rocks and coral on reefs whenever possible for Chama Trivia and Murex. Search muddy tidal flats for Melongena, Anamalocardia and Barnea. On sand bars you will find a host too numerous to comprehend such as Ficus, Fasciolaria, Pyrum, Tellina, Strombus, Cardium and Tellidora. Digging on the sand bar will be amply rewarded. The grassy bottoms are host to Marginella and Laevicardium mortoni.

Dredge in deep and shallow water. Do not overlook the brackish waters of the lagoon.

HOW TO SHELL

Explore, discover for yourself! Many of the shells will be in evidence but the majority will be concealed on pilings; under rocks; buried; or in tracks. Seek only live specimens or freshly dead. Study the animal as it moves about in its natural habitat. The shell is beautiful when prepared for display, but far more interesting when you have observed it alive. It is good sportsmanship to refrain from gathering specimens ruthlessly thus cleaning out an entire colony. It takes time for these shells to reproduce and mature. Many have become extinct in some areas because of such abuse.

The following equipment is helpful. a shovel for digging between high and low tide mark and on exposed sand bars. A sieve to wash away the sand and retain small mollusks. A net for dredging can be made by fastening a conical bag of netting on a strong wire hoop with a handle. Tongs are a favorite tool of the writer who is most squeamish at investigating the unknown by hand. A small sharp knife is needed for removing limpets, chitons, etc. Be sure not to disturb them in advance or, once alarmed, it will be impossible to dislodge them without damaging the shell. Drop the chitons in a jar of alcohol to preserve. Otherwise the animal will curl up and it is no easy matter to persuade it to relinquish this attitude. You will want a pail for carrying large specimens, and an assortment of small jars for more delicate shells. These jars can be labeled on the spot to avoid confusion of data later. Adhesive tape makes an excellent label that will not fall off when wet.

In order to successfully transport any of the starfish family drop them immediately in a strong solution of Epsom Salts. This causes them to relax, a state from which they never recover. It is then possible to arrange them for drying in a pleasing form. If you do not follow this procedure they will throw their legs when disturbed. Before drying run a few drops of formaldehyde along the underside of the legs and body.

The most simple form of dredge is a colander held over the side of a small boat. An inexpensive type dredge can be made from a 3' length of 9" sewer pipe. Plug one end with a wooden plug and tie ropes through equally spaced holes around the other end. Tie these ropes to a tow line. It is always safe to attach a float to the dredge in case the tow line breaks. The tow line should be double the depth of the water to allow the dredge to slide along the bottom.

PREPARING SHELLS FOR DISPLAY

The beauty of a shell is rarely evident when taken from the water. In addition to the epidermis there are often barnacles and other calcareous structures adhered to its surface.

To remove the animal place the shell in boiling water. The mollusk will die instantly. The size will determine the length of time necessary to loosen the creature from the shell. Two minutes will be sufficient for most univalves, however large specimens will take longer. Cool sufficiently to handle. Using a hooked wire or crochet needle gently pull and twist the animal from the shell. Occasionally the tip will remain in the apex. If it is loose an ear syringe will flush it out, otherwise it will be necessary to soak the shell in a covered container of salt water until the animal matter decays; or it can be propped, apex down, and a small quantity of alcohol poured in shell and allowed to remain for several days. Then dry in the shade. One other method is to use peroxide instead of alcohol and permit the tissue to work out. The animal should be removed from the shell immediately after boiling. Carefully detach the operculum (trap door). Bivalves will open soon after being placed in boiling water. Avoid crazing porcelaneous surfaces by excessive heat. Do not boil over two minutes. *Macrocallista* is an exception which cannot be boiled or color will be sacrificed.

To remove periostracum (epidermis) submerge in commercial bleach. Length of time will be determined by the amount of calcareous encrustation. The bleach will completely dissolve the periostracum and soften the barnacles, etc. A pointed metal instrument can then be used to remove the remaining calcified deposits. If there is any stain left beneath the barnacles, return to the bleach. *Pedalion* and *Atrinia* are exceptions that will completely dissolve in bleach.

Wash and brush on baby oil. This will enhance the color and preserve the shell. Now glue the operculum to cotton and return to natural position in the univalve. Oil the operculum. The shell is now ready for your catalog number.

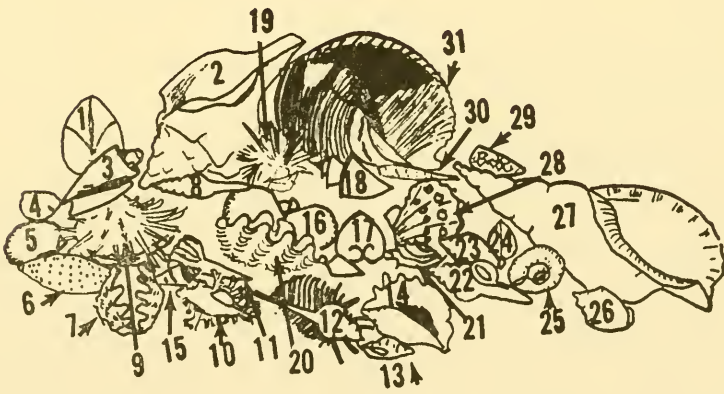
The use of muriatic acid on specimens is inadvisable because it removes some of the sculpture and natural luster of the shell. Baby oil will penetrate and preserve the shell.

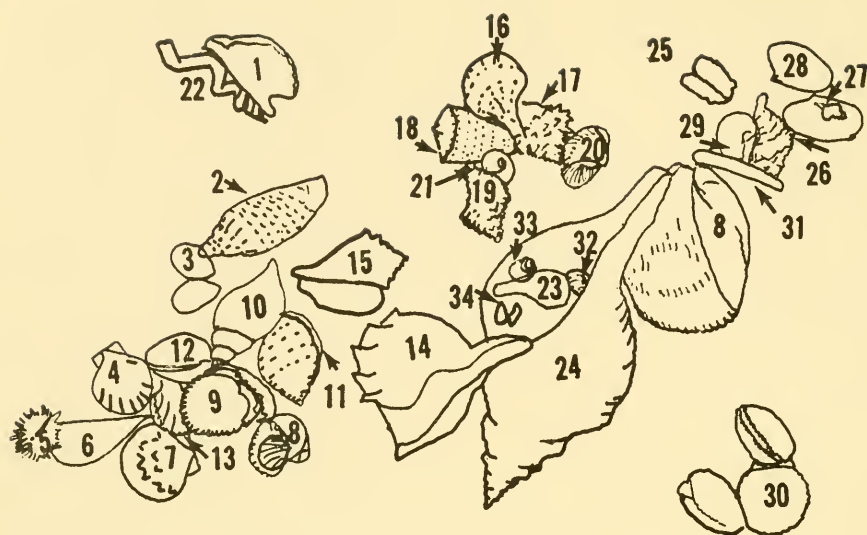
SHELL GEMS FROM AROUND THE WORLD

1. *Cardium Pseudolina*
2. *Xancus angulatus*, Solander
Florida Keys, Texas and West Indies
3. *Voluta imperialis*, Lamarck
Australia
4. *Cardium cardissa*, Linné
Nicobar Islands
5. *Pecten pallium*, Linné
Philippines
6. *Scaphella (aurinia) junonia*, Shaw
Gulf of Mexico
7. *Hippopus maculatus*, Lamarck
Philippines and East Indies
8. *Fusinus* (unclassified)
9. *Spondylus americanus*, Lamarck
Carolinas to Gulf of Mexico
10. *Murex palmarosea*, Lamarck
Indian and Pacific Oceans
11. *Busycon coarctatum*, Con.
Gulf of Mexico
12. *Murex tenuispina*, Lamarck
Philippines to Japan
13. *Cymatium rubecula*, Ch.
Philippines
14. *Strombus laciniatus*, Chemnitz
15. *Conus sozoni*, Bartach
Gulf of Mexico

SHELL GEMS FROM AROUND THE WORLD
(Continued)

16. *Pecten nobilis*, Reeve, Japan
17. *Isocardia cor*.
Mediterranean
18. *Thatcheri mirabilis*, Angas
Japan
19. *Spondylus americanus*, Lamarck
Carolinas to Gulf of Mexico
20. *Tridacna gigas*, Linné
Philippines to Tropical East Indies
21. *Venus lamellata*, Lamarck
So. Australia
22. *Fusinus timesusus*, Dall
Gulf of Mexico
23. *Sconsia striata*, Lamarck
Gulf of Mexico
24. *Cardium beekii*
25. *Architectonica granulata*, Lamarck
N. C. to Gulf of Mexico
26. *Cassis areola*, Linné
Australia
27. *Triton nobilis*, Con.
Bahamas
28. *Pecten nodosus*, Linné
Cape Hatteras to Florida Gulf coast
29. *Conus marmoreus bandanus*, Hwass -
New Caledonia
30. *Terebra flammea*, Lamarck
Lake Worth, Florida; Gulf coast of
Matagorda Island, Texas
31. *Tonna galea*, Linné
Cape Hatteras to Texas





Box



AT THE END OF A SHELL COLLECTOR'S RAINBOW

1. *Pteria colymbus*, Bolton (Winged Pearl Oyster)
These wash ashore attached to sea plants - usually in clusters.
2"-3" Range: North Carolina to West Indies
This specimen was found just south of John's Pass, St. Petersburg.
2. *Scaphella junonia*, Hwass (Juno's Volute)
3"-5" Range: South Carolina to Gulf of Mexico
Usually deep water shell but this one washed ashore at Sanibel Island.
3. *Tellina lineata*, Turton (Rose Petal)
1"-1½" Range: Florida East and west coasts
Favors grassy bottom. This specimen was taken at eastern end of Fort Myers Beach.
4. *Pecten raveneli*, Dall (Ravenel's Scallop)
2" Range: North Carolina to West Indies
This specimen is a deep water shell but they have been washed ashore during hurricane season.
5. *Echinochama arcinella*, Linné (Chest Rock Oyster)
1¼"-2" Range: Florida west coast
This specimen was found at Marco
6. *Atrina rigida*, Dillwyn (Sea Pen)
6"-10" Range Florida west coast
This specimen was found at Pass-a-Grill, St. Petersburg.
7. *Pecten ziczac*, Linné
2" Range: Florida west coast
Lives in 3-5 fathoms of water but washes ashore after severe storms.
8. *Cardium robustum*, Solander (Heart Cockle)
5" Range: Florida west coast
These specimens were taken from sand bar at Fort Myers Beach.
9. *Cardium isocardia*, Linné (Rose Cockle)
1"-2" Range: Florida west coast
This specimen taken from grassy flats during low moon tide at Fort Myers Beach.
10. *Fasciolaria tulipa*, Linné (Tulip band shell)
4"-6" Range: Florida west coast
This specimen taken from muddy tidal flat at Fort Myers Beach.
11. *Semicassis granulatum*, Born (Scoton Bonnet)
2½" Range: Florida west coast
This specimen taken from Port St. Joe.
12. *Laevicardium serratum*, Linné (Egg Cockle)
2"-3" Range: Florida west coast
This specimen was found on Sanibel Island after a blow.

13. *Cardium muricatum*, Linné (Yellow Cockle)
1"-2" Range: Florida west coast
This specimen taken on bay side of Sanibel Island.
14. *Busycon perversum*, Linné (Left Handed Whelk)
2"-12" Range: Florida west and southwest coasts
This specimen taken on sand bar exposed at low tide.
15. *Strombus pugilis*, Linné
3"-4" Range: Florida west coast
This specimen taken at Sanibel. .
15a Juvenile taken at Fort Myers Beach.
16. *Busycon pyrum*, Dillwyn (Pear Whelk)
2"-4" Range: Florida west coast
This specimen taken when wading quite a distance from shore between sandbars
at Fort Myers Beach.
17. *Melongena corona*, Gmelin (Kings Crown)
2"-3" Range: Florida east and west coasts.
This specimen taken at Punta Rassa
18. *Conus spurius atlanticus*, Clench (Alphabet Cone)
2"-3" Florida east and west coasts
This specimen was found in cone bar at Fort Myers Beach.
19. *Murex florifer*, Reeve (Lace Murex)
2"-3" Range: Southern Florida and Keys
This specimen was found at Sanibel.
20. *Noetia ponderosa*, Say (Ponderous Ark)
2"-21½" Range: Florida east and west coasts
This specimen taken at Fort Myers Beach.
21. *Natica carena*, Linné (Little Moon Shell)
1"-11½" Range: Florida east and west coasts
This specimen found at Sanibel Island.
22. *Vermicularia spirata*, Philippi (Worm Shell)
6"-10" Range: Florida east and west coasts
This specimen taken at St. Petersburg.
23. *Ficus papyratia*, Say (Paper Fog Shell)
5"-6" Range: Florida east and west coasts
This specimen taken at Fort Myers Beach.

24. *Fasciolaria gigantea*, Kiener (Horse Conch)
8"-24" Range: Florida west coast
This specimen taken at Fort Myers Beach.
25. *Area occidentalis*, Philippi (Turkey Wing)
1½"-3" Range: Florida east and west coasts
This specimen taken at St. Augustine Beach.
26. *Murex pomum*, Gmelin (Apple Murex)
2"-4" Range: Florida east and west coasts
This specimen taken at Sanibel.
27. *Moricidea multangula*, Philippi (Many Angled Drill)
¾"-1" Range: Florida east and west coasts
This specimen taken at Punta Rassa.
28. *Macrocallista nimbosa*, Solander (Sun Ray Shell)
4"-5" Range: Florida from Sarasota to Marco
This specimen taken at Fort Myers Beach.
29. *Polinices duplicata*, Say (Cat's Eye)
1"-2" Range: Florida east and west coasts
This specimen taken at Daytona Beach.
30. *Pecten gibbus*, Linné (Calico Scallop)
1¼"-1¾" Range: Florida west coast.
These specimens taken at Sanibel.
31. *Solen viridis*, Say (Razor Clam)
2" Range: Florida east and west coasts
This specimen taken at St. Augustine Beach.
32. *Chione cancellata*, Linné (Cross Barred Venus)
1" Range: Florida east and west coasts
This specimen taken at Sarasota.
33. *Cancellaria reticulata*, Linné (Nutmeg Shell)
1"-2" Range: Florida east and west coast
This specimen taken alive on Fort Myers Beach sand bar. Usually a deep water shell.
34. *Mytilus recurvus*, Rafinesque (Hooked Mussel)
1"-1½" Range: Florida east and west coasts.
This specimen taken in Caloosahatchee River at Fort Myers.

3. THE PECTENS (No. 1)

A globe trotting collector would be able to gather about two hundred and fifty species of pectens if he were equipped to search in deep water as well as shallow. He would spot a colorful scallop peering at him with its row of luminous little eyes fringing the edge of its mantel, each equipped with cornea, lens and optic nerve. As he stertched forth his hand to grasp this treasure he would probably be disconcerted at the hasty flight of the pecten darting out of reach by rapidly opening and closing its pretty valves.

The adult is usually free swimming, but when a juvenile it spun a byssus through a notch in the shell and attached itself to some stationary object.

The pecten with its radially ribbed surface, scalloped margins, diversity of color and pattern has inspired the artist through the ages. Pilgrims to the Holy Land wore a Mediterranean species as a badge of honor. Today the scallop is the handsome trade mark of an international oil company.

1. *Pecten ziczac*, Linné (Fan Shell)

Height: 3"

Range: Southern Florida to West Indies.

These specimens were dredged at Dry Tortugas and Bay of Campeche.

2. *Pecten sentis*, Reeve (Thorny Scallop)

Lives embedded in coral

Height: 1¼" Range: Southern Florida to West Indies

These specimens were taken at: Biscayne Bay, Crandon Park, Miami; outer reef off Key Largo; "Dry Rocks" reef 11 miles off shore of Key Largo; and dredged in 10-15 fathoms of water at Dry Tortugas.

3. *Pecten raveneli*, Dall

Sometimes mistaken for more common *ziczac*. These specimens are unusually large. The one on the right is a rare color form.

Height: 1¼"-1½" Range North Carolina to West Indies.

These specimens were dredged at Dry Tortugas and Bay of Campeche.

4. *Pecten irradians*, Lamarek (Bay Scallop)

Height 2½" Range: Atlantic coast and Gulf

These specimens were taken at Pine Island scallop grounds, Florida.

5. *Pecten gibbus*, Linné (Calico Scallop)

Height: 1½" Range: North Carolina to West Indies

These specimens taken at Sanibel Island (a) dredged at Dry Tortugas.

6. *Pecten muscosus*, Wood (Rough Scallop)

Height: 1¼"-1¾" Range: Florida coasts and Keys

These specimens dredged at Dry Tortugas and Bay of Campeche

7. *Pecten nodosus*, Linné (Lion's Paw)

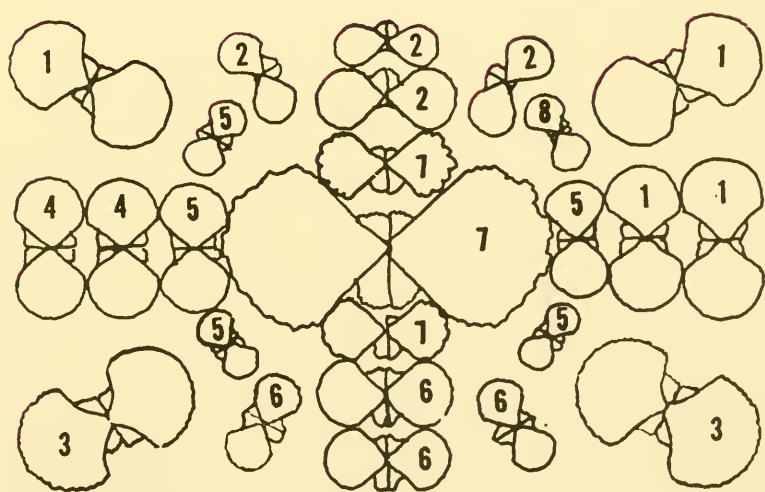
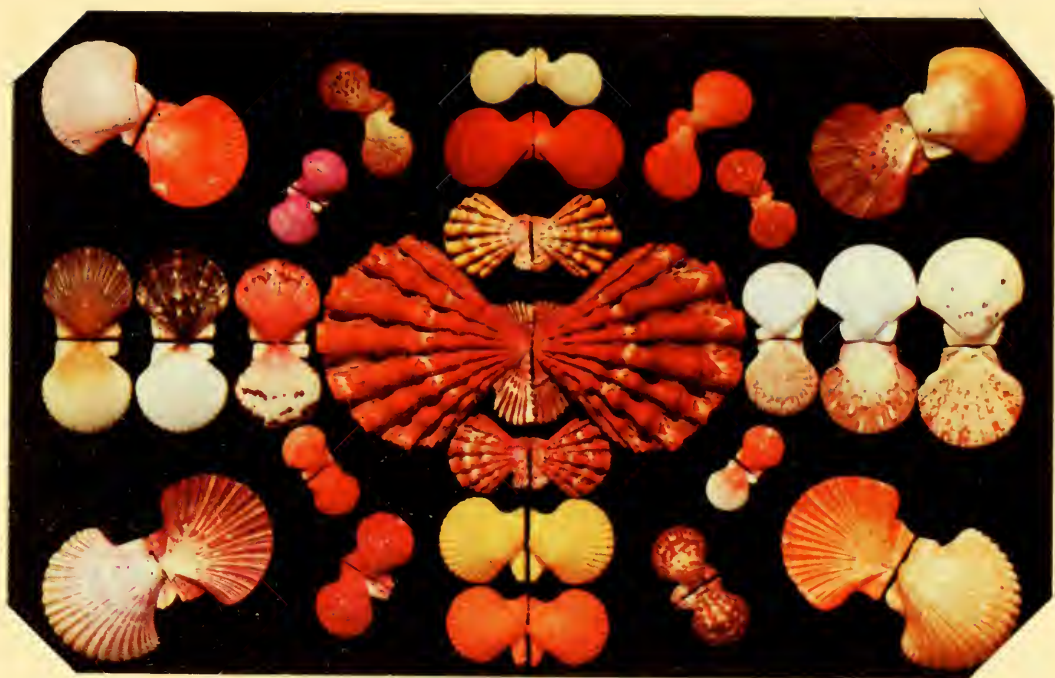
Height: 3"-4" Range: Florida east and west coasts south of Tarpon Springs and Jupiter Inlet

These specimens taken at Dry Tortugas, Bay of Campeche and Tarpon Springs.

8. *Pecten benedicti*, Verrill

Height: 1"

This specimen was dredged at Dry Tortugas





C
Box



4. THE MUREX (No. 1)

This carnivorous pirate family can be found on the rocky, coral or gravel bottom of every sea, preying on gastropods and pelecypods alike. The most spectacular species modeling ornate sculpture - three varices to a whorl - elaborate with fluted edge, spines, lace or nodes; sturdy and graceful are found in tropical waters.

The ancients used the fluid exuded by these shells for purple dye. Paul, in the New Testament, writes of "Lydia, a seller of purple, of the city of Thyatira."

1. *Murex pomum*, Gmelin (Apple Murex)
Height: $1\frac{1}{2}$ "-4" Range: North Carolina to Venezuela
These specimens were dredged at Dry Tortugas, Bay of Campeche and taken at Sanibel Island.
2. *Murex trioni*, Hidalgo
Height: 2"
Dredged at Dry Tortugas
3. *Murex recurvirostris salasi*, Rehder & Abbott
Height: $2\frac{1}{2}$ "-3"
Dredged at Bay of Campeche
4. *Murex cabritii*, Barnardi (Spiny Murex)
Some specimens very spinous, others completely devoid of spines.
Height: 3" Range: Florida to Texas and West Indies
These specimens were dredged at Dry Tortugas; south west of Sombrero Key Light at 35 fathoms - white mud.
5. *Murex woodringi*, Clench & Farfante
Height: $3\frac{1}{2}$ "
Dredged off coast of Honduras
6. *Murex megintyi* Smith
Height: $\frac{3}{4}$ " Specimen Dredged Florida East Coast
7. *Murex brevifrons*, Lamarck (Short Frond Murex)
Common in West Indies but rare in this country.
Height: 3" Range: North Carolina to Columbia, S. A.
8. *Murex cellulosa*, Conrad
Height: Just under 1" Range: North Carolina to Gulf - shallow water
This specimen was taken at Fort Myers Beach.
9. *Murex fulvenscens*, Sowerby (Tawny Murex)
Height: 6" Range: Carolina to Texas - Deep water
Largest member of its genus in Florida waters.
This specimen dredged at Dry Tortugas
10. *Murex florifer arenarius*, Clench & Farfante (Lace Murex)
Height: 1" -3" Range: North Carolina to South America
These specimens taken at Florida Keys, Dry Tortugas and Bay of Campeche.
11. *Murex recurvirostris rubidus*, Baker (Rock Shell)
Height: 2" Range: Southern Florida and West Indies
These specimens dredged 230 miles from Fort Myers Buoy at 20 fathoms; Yucatan and Bear Cut, Crandon Park, Miami.

5. THE CYMATIUM (No. 1)

A brilliantly colored animal preferring warm waters inhabits these rugged shells. The two varices to a whorl is a distinguishing characteristic from the closely related murex with its three varices.

Remember the triton shell used as a horn in ancient Greek literature? The Australian and Polynesian islanders are still using tritonis, the largest species, for this purpose. In parts of India left-handed spirals are considered sacred.

1. *Cymatium cynocephalum*, Lamarck (Ribbed Triton)

Note strong horizontal ribbing.

Height: 3"

These specimens were dredged at Dry Tortugas

2. *Cymatium poulsoni*, Morch

Height: 2"

These specimens were dredged at Dry Tortugas

3. *Cymatium aquatile*, Reeve (Hairy Triton)

Height 2-6" Range: Southern Florida, West Indies and Pacific

Specimen dredged at Dry Tortugas

4. *Cymatium krebsi*, Morch

Height: 2"

This specimen dredged at Dry Tortugas

5. *Cymatium costatum monoplex americanum*, Orbigny

Height: 3¼"

This specimen dredged at Dry Tortugas

6. *Cymatium femorale*, Linné (Angular Triton)

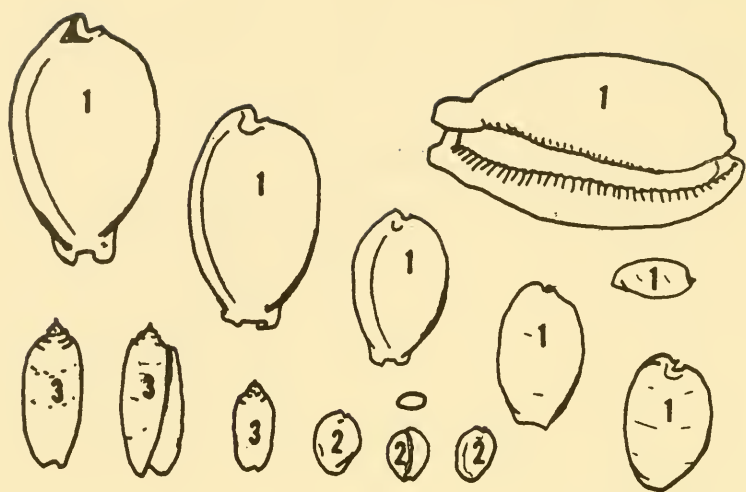
Height: 3"-7.5" Range: Southern Florida and West Indies

These specimens dredged at Dry Tortugas.

7. *Cymatium Tuberosum*, Lamarck

Florida Keys





6. THE CYPREA (No. 1)

The cowry, a great favorite of collectors, is a tropical shell beautifully colored and brightly polished. It does not have an operculum. The mantle of the animal, expanded from both sides usually envelopes the shell forming the porcelain like surface with the calcareous deposit it secretes.

1. *Cyprea exanthema cervus*, Linné (Measled Cowry)

A growth series. This cyprea is believed to be the largest of the coweries. Note the stripes of the juvenile are practically displaced by the "measles" on the adult. Spots are never ringed as on *cyprea exanthema*. It is longer, stouter and darker colored than the typical variety.

Height 3"-4"

These specimens were dredged at Dry Tortugas and Bay of Campeche.

2. *Cyprea spurca*, Linné (Yellow Spotted Cowry)

Height: 1"-1 $\frac{1}{4}$ "

These specimens dredged in Bay of Campeche

THE OLIVES

This family is tropical and subtropical and like the cyprea is a brilliantly polished shell having no operculum and is subcylindrical in shape.

3. *Oliva sayana*, Ravenel (Lettered Olive)

The common name is apropos to the two bands of hieroglyphic-like markings. The *olivia sayana* lives in colonies at low tide mark on Florida beaches, or an exposed tidal flat. Their track is similar to that of a mole but proportionate to the size of the animal. If he is not at one end try the other! Tap him on the shoulder and the mantle will recede revealing the beautiful porcelain shell.

Height: 2"-3" Range both Florida coasts

These specimens taken at Fort Myers Beach. Small specimen is golden phase taken at Marco.

7. THE SPONDYLUS (No. 1)

These vividly colored and handsomely spined bivalves are usually securely anchored to coral. A free swimmer is most unusual. Some of our finest specimens are brought up by sponge divers at Tarpon Springs. Lovely as they are when exhibited, one would hardly recognize the spiny oyster so encrusted are they with calcareous structures and deposits which must painstakingly be removed without harm to the long delicate spines. •

1. *Spondylus americanus*, Hermann (Thorny Oyster)

Brilliant red, yellow, orange, white, purple and brown.

Some with a combination of two or more of these colors.

This extraordinary shell is ornate with radial, ruffled spines.

3"-5" Range: Florida east coast and Gulf

These specimens taken at Tarpon Springs and dredged at Dry Tortugas

THE CHAMA

This family is often gregarious, several individuals anchored together, Yellow, pink, purple, white. Well developed foliations with fluted edges.

2. *Chama macerophylla*, Gmelin (Jewel Box)

Height: 1"-3" Range: Florida east coast; Florida west coast from Tampa Bay to Marco Island

Specimens brought in by sponge divers at Tarpon Springs

3. *Chama congregata*, Conrad (Congregate Chama)

Height: 1" Range: Tampa, Florida to West Indies

Specimens brought in by sponge divers at Tarpon Springs.

4. *Echinochama arcinella*, Linné (Chest Rock Oyster)

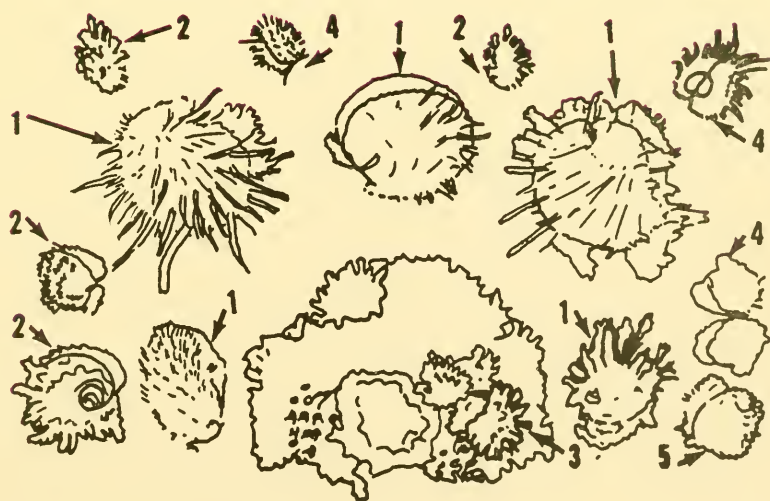
Height 1¼"-2" Range: Florida west coast.

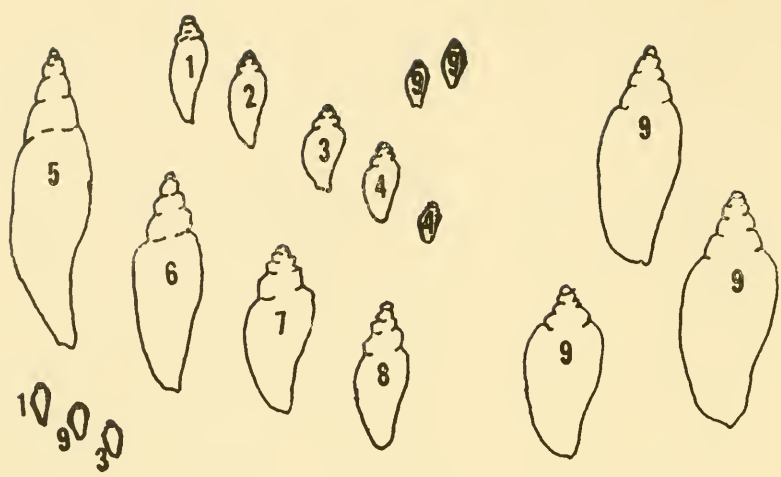
These specimens dredged along Gulf coast and Dry Tortugas

5. *Chama Sarda*, Reeve (Little Jewel Box)

Height: 1" Range: Florida Keys

Specimen taken off Key Largo.





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8. THE SCAPHELLA (No. 1)

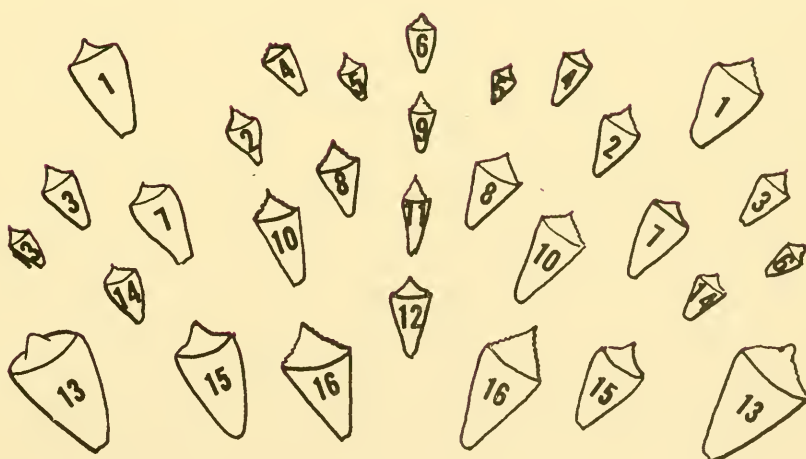
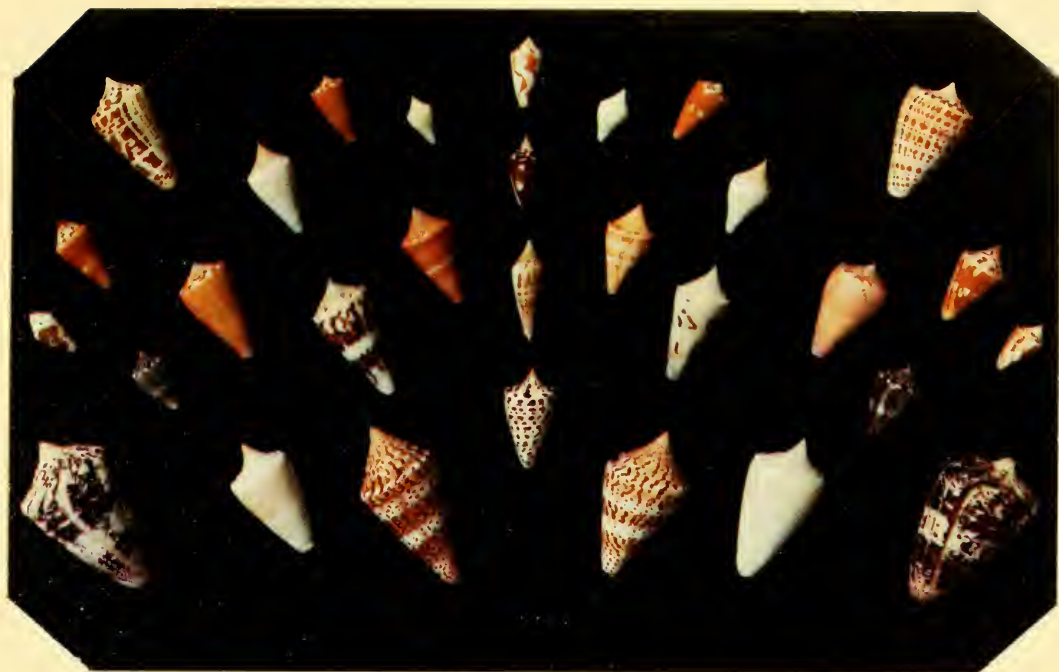
This aristocratic family, prized for beauty of form and pattern, dwell in deep tropical waters and are not easily dredged. There are more than 150 species around the world, most of them in the Australian area. *Musica voluta* is possibly the only member of this family having an operculum. The embryonal whorl at the top of many species is preserved just as it emerged from the egg sac, unaltered in size or shape but mounted at the pinnacle of the spire formed as the shell matured.

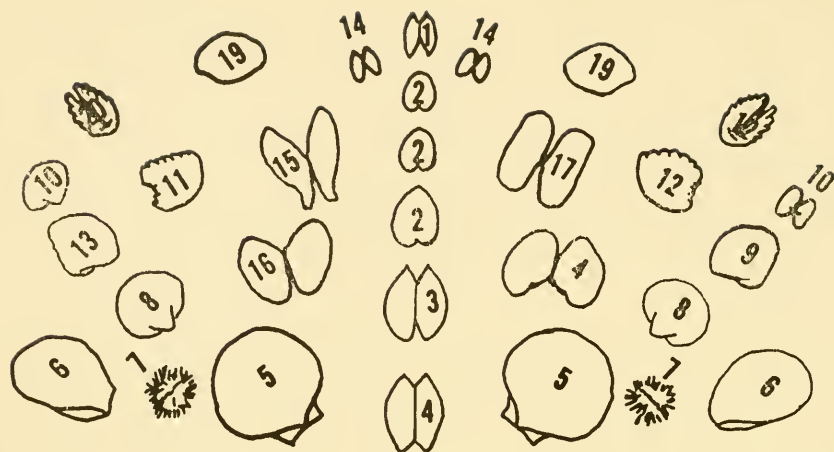
1. *Scaphella (Aurinia) dubia*, Broderip
Specimen dredged off Palm Beach, Florida
115 fathoms Rare
2. *Scaphella (Aurinia) dohrni*, Sowerby
Specimen dredged off Sombbrero Light, Florida Keys
85 fathoms. Grey sandy mud. Rare
3. *Scaphella florida*, Clench
Dredged off Hillsboro Light, Florida
150 fathoms 1 adult 1 juvenile
4. *Scaphella cuba*, Clench
Dredged off Hillsboro Light, Florida
150 fathoms 1 adult 1 juvenile
5. *Auriniopsis kieneri*, Clench
Specimen taken south east of Mississippi Pass
100 fathoms
6. *Rehderia georgiana*, Clench
Specimen dredged east of Melbourne, Florida
Atlantic Ocean 80-105 fathoms. Blue mud bottom.
7. *Scaphella*
(Not yet classified by scientists)
8. *Scaphella gouldiana*, Dall
Specimen dredged east of Melbourne, Florida
Atlantic Ocean 80-105 fathoms. Blue mud bottom
9. *Scaphella (aurinia) junonia*, Shaw
 - a. Specimen found on Sanibel Island
 - b. Specimen dredged at Dry Tortugas
 - c. *Scaphella junonia butleri*, Clench
dredged at Bay of Campeche
 - d. Baby specimens dredged 230 miles from Fort Myers Buoy
20 fathoms.

9. THE CONES (No. 1)

This conical shell bores into other mollusks and extracts the juices. There are some five hundred species most of which dwell in tropic seas. Some of the cones possess poison glands. In fact some of the South Pacific and Indian Ocean species are capable of inflicting serious and even fatal wounds. The cone benumbs its prey with the venom fed to its radula. This family is very popular among collectors because of the variety of vivid colors and unique patterns.

1. *Conus spurius atlanticus*, Clench
Specimens dredged off Progreso, Yucatan in 34 fathoms.
2. *Conus austini*, Abbott & Rehder
Specimens dredged at Dry Tortugas
3. *Conus floridanus*, Gabb
Specimens taken at Fort Myers Beach
4. *Conus juliae*, Clench
Specimens dredged 200 miles southwest of Campeche at 25 fathoms.
5. *Conus sennotorum*, Rehder and Abbott
Specimens dredged at Bay of Campeche off Progreso, Yucatan at 34 fathoms.
6. *Conus verrucosus*, Hwass
Specimen taken at Florida Keys.
7. *Conus daucus*, Bruguere
Specimens dredged at Bay of Campeche off Alvaro Oregon
8. *Conus stimpsoni*, Dall
Specimens dredged off Sombrero Light, Florida Keys
50 fathoms. Grey sandy mud. Rare
9. *Conus Floridanus burryi*
Specimen taken at Crandon Park, Miami
10. *Conus amphiurgus*, Dall
Specimens dredged off Sombrero Light Key, Marathon. Florida Keys.
70 fathoms Mud (a. Very rare - unusual coloring)
11. *Conus Mazei*, Deshayes
Dredged southeast of Mississippi Pass, Gulf of Mexico
300 to 350 fathoms
12. *Conus largillierti*, Kiener
Off coast of Honduras
13. *Conus regius*, Gmelin
Specimens taken under rocks on "Dry Rocks", reef 11 mi. off Key Largo, Florida
14. *Conus citrinus*, Gmelin
Specimens taken off Florida Keys
15. *Conus spurius aureafasciatus*, Rehder & Abbott
Specimen dredged at Dry Tortugas - 30 fathoms.
16. *Conus sozoni*, Bartsch
Specimens dredged at Dry Tortugas



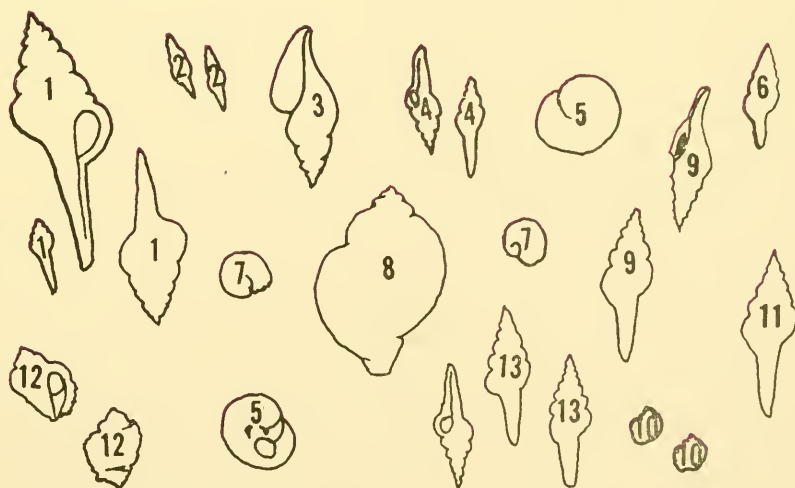


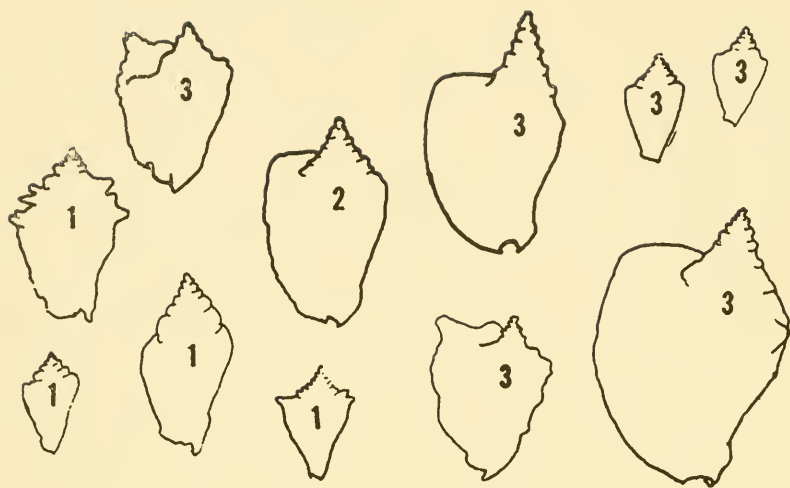
10. HETEROGENEOUS COLLECTION OF BIVALVES (No. 1)

1. *Petricola lapicida*, Gmelin
Specimens taken from coral brought from Dry Tortugas 15 fathoms.
2. *Trigonicardia medium*, Linné Specimens taken 200 miles southwest
of Campeche shrimp grounds 25 fathoms.
3. Bivalve (unclassified) similar to *Pitaria cordata*
Gulf of Mexico off Texas coast.
4. *Chione interpurpurea*, Conrad
Specimens dredged at Campeche and Dry Tortugas.
5. *Amussium papyraceum*, Gabb
Specimens dredged at Dry Tortugas
6. *Lima scabra*, Born
Specimens dredged at Dry Tortugas and Bay of Campeche
7. *Echinochama arcinella*, Linné
Brought in by sponge divers at Tarpon Springs (very long spines)
Also dredged at Dry Tortugas
8. *Glycemeris americanus lineatus*, Reeve
Dredged at Dry Tortugas
9. *Pitar fulminata*, Menke
Taken at Boynton Beach, Lake Worth, Florida
10. *Costacallista eucymata*, Dall
Specimens dredged off Sombrero Light, east coast of Florida
11. *Chione* (unclassified)
Dredged at Bay of Matanzas
12. *Chione litterata*, Conrad
Dredged at Dry Tortugas and Bay of Campeche
13. *Semele purpurascens*, Sowerby
Dredged at Bay of Campeche
14. *Microcardium tinctum*, Dall
Dredged southwest of Egmont Key, Entrance to Tampa Bay 33 fathoms
Sandy bottom.
15. *Tellina interrupta*, Wood
Dredged at Bay of Campeche
16. *Tellina laevigata*, Linné
Taken at Little Duck Key, Florida Keys.
17. *Psammosolen sanetae marthae*, d'Orbigny
Specimen dredged 170 miles northeast of Progresso off Campeche banks.
29 fathoms
18. *Glycymeris americanus*, DeFrance
Specimens taken at Dry Tortugas and 230 miles from Fort Myers Sea Buoy
15 fathoms.
19. *Craesatella gibbsii*, T. & H.
Dredged at Dry Tortugas
20. *Chione megintyi*

11. HETEROGENEOUS COLLECTION OF RARE UNIVALVES (No. 1)

1. *Fusinus* (*Heilprina*) *timesus*, Dall
Dredged in Gulf of Mexico
2. *Polystira vibex*, Dall
Dredged off Sombrero Light, Florida Keys 70 fathoms. Grey sand bottom.
3. *Leucosyrinx*
Specimen taken southeast of Mississippi Pass, Gulf of Mexico. 400-500 fathoms.
4. *Fusinus helenae*, Bartsch
Specimens dredged in Bay of Campeche
5. *Gaza superba*, Dall
Specimens dredged at St. Marks near Carabelle, Florida 270 fathoms.
6. *Turris periscelida*, Dall
Dredged southeast of Mississippi Pass
Gulf of Mexico 123 fathoms
7. *Calliostoma psyche*, Dall
Specimen dredged off Palm Beach, Florida in 90 fathoms. Grey sand bottom.
8. *Oocorys bartschi*, Rehder
Specimen dredged southwest of southwest Pass outlet of Mississippi River
240 fathoms.
9. *Fusinus* (unclassified)
Dredged in Gulf
10. *Cancellaria tenera*, Philippi
Specimens dredged off Pompano Reef, Florida in 65 fathoms and at Dry Tortugas 10-15 fathoms
11. *Fusinus* (unclassified)
12. *Coralliophila abbreviata*, Lamarck
Taken from Carysport reef, Dade County, Florida
Florida Keys out from Key Largo.
13. *Fusinus eucosmius*, Dall
Specimens dredged 230 miles from Fort Myers Buoy in 15 fathoms, and southwest of Sombrero Key Light in 40 fathoms Rocky bottoms.





12. STROMBUS No. 1

The strombus does not creep but travels by a series of jumps rotating the shell from side to side. When placed on its back it rights itself somersault fashion by its strong narrow foot. This family are scavengers, feeding upon dead organisms as it maneuvers about the ocean bottom.

1. *Strombus pugilis*, Linné (Fighting Conch)

Height: 3"-4" Range: Florida west coast

Specimens taken from Fort Myers Beach and off Honduras

2. *Strombus raninus*, Gmelin (Hawk Wing)

Height: 4"-6" Range: Southern Florida and West Indies

Specimens taken off Florida Keys

3. *Strombus costatus*, Gmelin (Ribbed Strombus)

Height: 4½" Range: Florida and West Indies

Specimens dredged at Dry Tortugas

